Reasoning and Problem Solving
Step 17: Multiply Non-Unit Fractions by an Integer

National Curriculum Objectives:

Mathematics Year 5: (5F5) Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams
Mathematics Year 5: (5F3) Compare and order fractions whose denominators are all multiples of the same number
Mathematics Year 5: (5F2a) Recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number [for example, 2/5 + 4/5 = 6/5 = 1 1/5]
Mathematics Year 5: (5F2b) Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths

Differentiation:

Questions 1, 4 and 7 (Reasoning)
Developing Explain the odd one out when multiplying non-unit fractions by integers, where the denominators are the same.
Expected Explain the odd one out when multiplying non-unit fractions by integers. Fractions need to be converted to a mixed number or simplified using knowledge of equivalent fractions.
Greater Depth Explain the odd one out when multiplying unit fractions by integers. Fractions need to be converted to a mixed number and simplified using knowledge of equivalent fractions.

Questions 2, 5 and 8 (Reasoning)
Developing Prove who is correct when non-unit fractions by integers.
Expected Prove who is correct when non-unit fractions by integers. Fractions need to be converted to a mixed number or simplified using knowledge of equivalent fractions.
Greater Depth Prove who is correct when non-unit fractions by integers. Fractions need to be converted to a mixed number and simplified using knowledge of equivalent fractions.

Questions 3, 6 and 9 (Problem Solving)
Developing Multiply non-unit fractions by integers in order to compare, where denominators are the same.
Expected Multiply non-unit fractions by integers in order to compare, where denominators are the same and fractions are improper.
Greater Depth Multiply non-unit fractions by integers in order to compare where denominators are different and fractions are improper.

More Year 5 Fractions resources.

Did you like this resource? Don't forget to review it on our website.

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Multiply Non-Unit Fractions by an Integer

Multiply Non-Unit Fractions by an Integer

1a. Which is the odd one out?

A. $\dfrac{3}{15}$ x 4

B. $\dfrac{2}{15}$ x 7

C. $\dfrac{2}{15}$ x 6

D. $\dfrac{4}{15}$ x 3

Explain why.

R

1b. Which is the odd one out?

A. $\dfrac{5}{20}$ x 3

B. $\dfrac{3}{20}$ x 6

C. $\dfrac{3}{20}$ x 7

D. $\dfrac{4}{20}$ x 3

Explain why.

R

2a. Class 5B have been solving the calculation below.

$$\dfrac{5}{17} \text{ x } 3$$

Rosie says,

I think the answer is $\dfrac{15}{51}$.

Todd says,

I think the answer is $\dfrac{15}{17}$.

Who is correct? Prove it.

R

2b. Class 5S have been solving the calculation below.

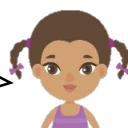$$\dfrac{3}{13} \text{ x } 4$$

Stuey says,

I think the answer is $\dfrac{12}{13}$.

Meg says,

I think the answer is $\dfrac{13}{12}$.

Who is correct? Prove it.

R

3a. Fill in the missing number or symbol to make the comparison statements correct.

A. $\dfrac{4}{13}$ x $\square$ < $\dfrac{5}{13}$ x 2

B. $\dfrac{3}{17}$ x 5 $\square$ $\dfrac{4}{17}$ x 4

PS

3b. Fill in the missing number or symbol to make the comparison statements correct.

A. $\dfrac{3}{19}$ x 4 > $\dfrac{5}{19}$ x $\square$

B. $\dfrac{5}{21}$ x 4 $\square$ $\dfrac{8}{21}$ x 2

PS

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4a. Which is the odd one out?

A. $\frac{2}{20} \times 5$ B. $\frac{3}{18} \times 3$

C. $\frac{3}{12} \times 2$ D. $\frac{2}{16} \times 2$

Explain why.

☆E   R

4b. Which is the odd one out?

A. $\frac{6}{19} \times 4$ B. $\frac{3}{19} \times 8$

C. $\frac{5}{19} \times 4$ D. $\frac{2}{19} \times 12$

Explain why.

☆E   R

5a. Class 5A have been solving the calculation below.

$$\frac{6}{19} \times 4$$

Jorelle says,

> I think the answer is $1\frac{5}{19}$.

Oscar says,

> I think the answer is $\frac{24}{19}$.

Who is correct? Prove it.

☆E   R

5b. Class 5F have been solving the calculation below.

$$\frac{3}{18} \times 2$$

Stan says,

> I think the answer is $\frac{6}{18}$.

Holly says,

> I think the answer is $\frac{1}{3}$.

Who is correct? Prove it.

☆E   R

6a. Fill in the missing numbers to make the comparison statements correct.

A. $\frac{3}{11} \times \boxed{} \; < \; \frac{7}{11} \times 3$

B. $\frac{9}{19} \times 3 \; > \; \frac{6}{19} \times \boxed{}$

Is there more than one solution?

☆E   PS

6b. Fill in the missing numbers to make the comparison statements correct.

A. $\frac{10}{13} \times 2 \; > \; \frac{4}{13} \times \boxed{}$

B. $\frac{6}{17} \times \boxed{} \; < \; \frac{8}{17} \times 3$

Is there more than one solution?

☆E   PS

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Reasoning and Problem Solving – Multiply Non-Unit Fractions by an Integer – Year 5 Expected

Multiply Non-Unit Fractions by an Integer

7a. Which is the odd one out?

A. $\dfrac{6}{18}$ x 4

B. $\dfrac{3}{12}$ x 5

C. $\dfrac{5}{16}$ x 4

D. $\dfrac{5}{20}$ x 5

Explain why.

⭐ GD

R

Multiply Non-Unit Fractions by an Integer

7b. Which is the odd one out?

A. $\dfrac{4}{12}$ x 4

B. $\dfrac{8}{14}$ x 2

C. $\dfrac{4}{27}$ x 9

D. $\dfrac{4}{15}$ x 5

Explain why.

⭐ GD

R

8a. Class 5D have been solving the calculation below.

$$\dfrac{5}{14} \text{ x } 7$$

Lindsay says,

I think the answer is $2\dfrac{1}{2}$.

Kyle says,

I think the answer is $1\dfrac{1}{2}$.

Who is correct? Prove it.

⭐ GD

R

8b. Class 5H have been solving the calculation below.

$$\dfrac{9}{20} \text{ x } 5$$

Lee says,

I think the answer is $2\dfrac{1}{3}$.

Amy says,

I think the answer is $2\dfrac{1}{4}$.

Who is correct? Prove it.

⭐ GD

R

9a. Fill in the missing numbers to make the comparison statements correct.

A. $\dfrac{7}{12}$ x ☐ < $\dfrac{5}{6}$ x 3

B. $\dfrac{3}{8}$ x 7 > $\dfrac{9}{16}$ x ☐

Is there more than one solution?

⭐ GD

PS

9b. Fill in the missing numbers to make the comparison statements correct.

A. $\dfrac{5}{14}$ x 7 > $\dfrac{9}{28}$ x ☐

B. $\dfrac{8}{18}$ x ☐ < $\dfrac{7}{9}$ x 3

Is there more than one solution?

⭐ GD

PS

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Reasoning and Problem Solving – Multiply Non-Unit Fractions by an Integer – Year 5 Greater Depth

Reasoning and Problem Solving Multiply Non-Unit Fractions by an Integer

Developing

1a. B is the odd one out as it equals $\frac{14}{15}$. All the rest equal $\frac{12}{15}$.

2a. Todd is correct. $\frac{5}{17}$ x 3 = $\frac{15}{17}$.

3a. A. 1 or 2   B. <

Expected

4a. D is the odd one out as the others are equivalent to $\frac{1}{2}$.

5a. They are both correct but Oscar hasn't converted his answer to a mixed number.

6a. A. 1, 2, 3, 4, 5 or 6   B. 1, 2, 3 or 4

Greater Depth

7a. A is the odd one out as it's equivalent to $1\frac{1}{3}$. The others are equivalent to $1\frac{1}{4}$.

8a. Lindsay is correct. $\frac{5}{14}$ x 7 = $2\frac{1}{2}$.

9a. A. 1, 2, 3 or 4   B. 1, 2, 3 or 4

Reasoning and Problem Solving Multiply Non-Unit Fractions by an Integer

Developing

1b. C is the odd one out as it makes an improper fraction.

2b. Stuey is correct. $\frac{3}{13}$ x 4 = $\frac{12}{13}$.

3b. A. 1 or 2   B. >

Expected

4b. C is the odd one out as it equals $1\frac{1}{19}$. All the rest equal $1\frac{5}{19}$.

5b. They are both correct as $\frac{1}{3}$ is the simplest form of $\frac{6}{18}$.

6b. A. 1, 2, 3 or 4   B. 1, 2 or 3

Greater Depth

7b. B is the odd one out as it's equivalent to $1\frac{1}{7}$. The others are equivalent to $1\frac{1}{3}$.

8b. Amy is correct. $\frac{9}{20}$ x 5 = $2\frac{1}{4}$.

9b. A. 1, 2, 3, 4, 5, 6 or 7   B. 1, 2, 3, 4 or 5

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Reasoning and Problem Solving – Multiply Unit Fractions by an Integer **ANSWERS**